RTCA Special Committee 186, Working Group 3

ADS-B 1090 MOPS, Revision A

Meeting #12

Diagram to Clarify Error Correction

Presented by William Harman

SUMMARY

A new diagram is offered for use in the MOPS, Appendix I, as a mean of clarifying the use of the three primary error detection/correction techniques. This paper addresses action item 10-8.

Diagram to Clarify Error Correction

William Harman

In recent work with error detection and correction, the following diagram has been useful internally for describing the three primary techniques and showing how they contribute to the total process. Since it is useful to us, it might be useful to a reader of the MOPS.

I propose adding this diagram and a small text change to section I.4.3.4. Specifically, at the end of the first paragraph, I propose replacing the last sentence,

"It is applicable to any method of data and confidence declaration, with or without amplitude, and is applied after the other techniques have failed."

with two sentences:

"It is applicable to any method of data and confidence declaration, with or without amplitude. As illustrated in Figure I-6, Brute Force error correction is applied after the other techniques have failed."

DEMODULATED MESSAGE

(112 information bits
and
112 confidence bits)

ERROR DETECTION → **OUTPUT (112 bits)**

**Otherwise
(message has some errors)**

CONSERVATIVE ERROR CORRECTION → **OUTPUT (112 bits)**

**Otherwise
(message still has some errors)**
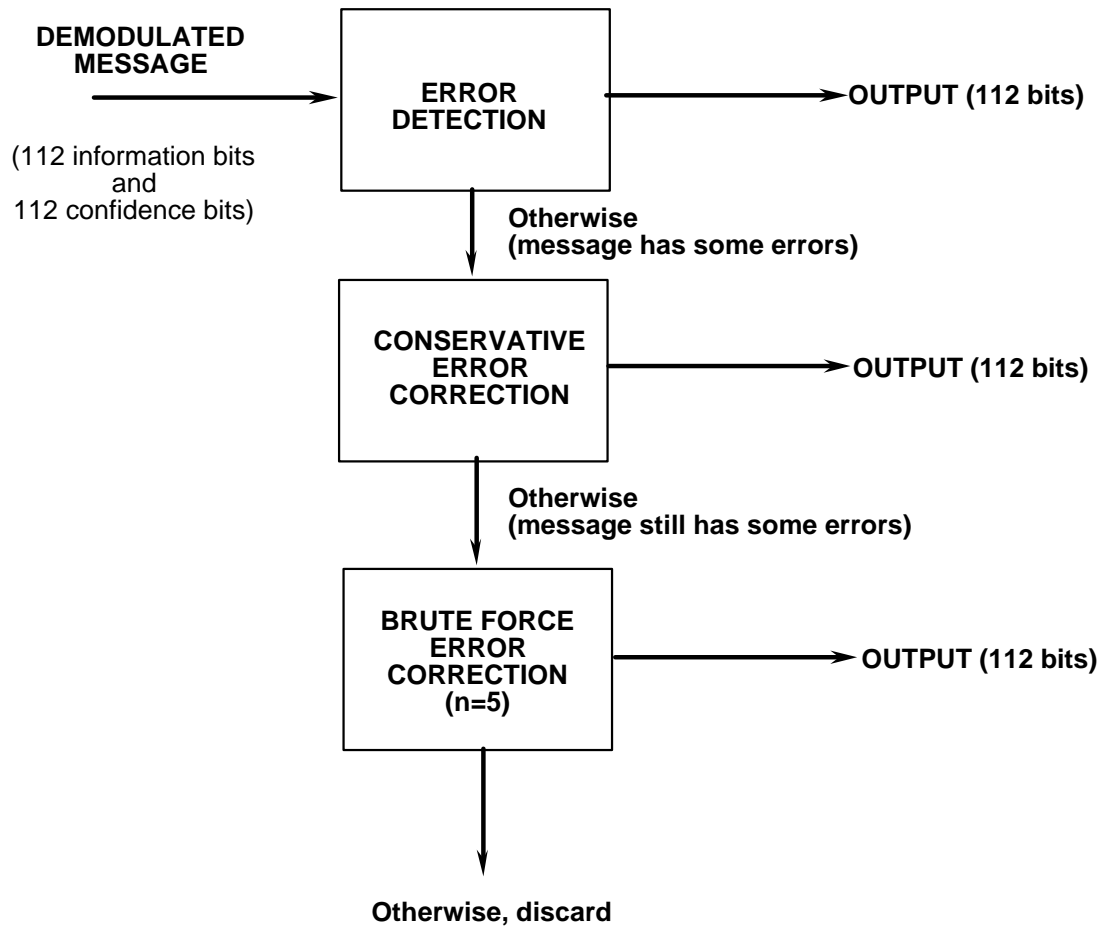
**BRUTE FORCE ERROR CORRECTION
(n=5)** → **OUTPUT (112 bits)**

Otherwise, discard

Figure I-6. Error Detection and Correction.